

CLAIMS

1. An antenna arrangement for a wireless device, the device comprising at least one ground conductor and the antenna arrangement
5 comprising at least one antenna, wherein the or each antenna has an electrical length of more than half a wavelength, the electrical length being selected so that the total current in each of the at least one ground conductors is substantially minimised.
- 10 2. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a helical antenna.
3. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a monopole antenna.
- 15 4. An antenna arrangement as claimed in claim 1, characterised in that the or each antenna is a physically-shortened electric antenna.
- 20 5. An antenna arrangement as claimed in any one of claims 1 to 4, characterised in that the electrical length of the or each antenna is between 0.5 and 0.8 wavelengths.
- 25 6. An antenna arrangement as claimed in any one of claims 1 to 4, characterised in that the antenna arrangement comprises at least two antennas and further comprises means for feeding each antenna with a signal of suitable amplitude and phase so that the antenna arrangement functions as a directional array.
- 30 7. An antenna arrangement as claimed in claim 5, characterised in that the antenna arrangement comprises at least two antennas and further comprises means for feeding each antenna with a signal of suitable amplitude and phase so that the antenna arrangement functions as a directional array.

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A wireless device including an antenna arrangement as claimed in any one of claims 1 to 4.

5 9. A wireless device including an antenna arrangement as claimed in claim 5.

 10. A wireless device including an antenna arrangement as claimed in claim 6.

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 11. A wireless device including an antenna arrangement as claimed in claim 7.

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